

AIR GUIDE APPARATUS OF HEAT SINK

Background of the Invention

1. Field of the Invention

5 The present invention relates to a heat sink, more particularly, and to a heat sink with an air guide apparatus discloses a plurality of air guides deposited on the plane of heat sink to lead the heat orderly for enhancing the cooling performance.

10 2. Description of the Related Art

 The electric equipments always generate high temperature during operation process so that it could be worked by the heat sink and fan to cool enforced.

 The heat sink 1 comprises a plurality of fins 11 like grilles deposited to
15 the surface of the electric element 2. When the heat of electric element 2 leads to the fins 11, the heat of fins 11 could be cooled enforced by a fan 3 to lower the temperature of electric element 2, refer to Fig. 1. Refer to Fig. 2, the heat sink 1 uses the fins 11 to lead the heat from the electric element 2 and uses the fan 3 to cool the fins 11. The fan 3 could form a convolution
20 31 when the wind 31 passes through the top of fins 11 to the bottom of it. The convolution 31 could be formed a turbulence after the convolution continuously collides each others. The airflow stays in the heat sink at the long time so that the heat sink loses the function of cooling the electric
25 element 2.

Summary of the Invention

To save the above mentions of disadvantages, the present invention discloses a heat sink with an air guide apparatus comprising a plurality of air guides. The air guide is disposed on the surface of heat sink, and the inlet slopes down to the outlet for leading orderly to enhance the cooling performance. The heat sink apparatus could lead effectively the heat and add the touch surface in accordance with the sloping air guide for enhancing the cooling performance.

It is to be understood that both the foregoing general description and the following detailed description are exemplary, and are intended to provide further explanation of the invention as claimed.

Brief Description of the Drawings

The accompanying drawing is included to provide a further understanding of the invention, and is incorporated in and constitutes a part of this specification. The drawing illustrates an embodiment of the invention and, together with the description, serves to explain the principles of the invention. In the drawing,

Fig. 1 is an illustrate view showing the electric element and the fan of the prior art;

Fig. 2 is an illustrate view showing the air flow of the heat sink of the prior art;

Figs. 3, 4 are illustrating views showing the heat sink and the fan of the present invention;

Figs. 5, 6 are illustrating views showing the heat sink and the fan of another embodiment of the present invention;

Fig. 7 is an illustrate view showing the fan and heat sink apparatus

according to Fig. 5 of the present invention; and

Fig. 8 is a partial illustrate view showing the fan and the heat sink apparatus according to Fig. 5 of the present invention.

Detailed Description of the Preferred Embodiments

5 Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the description to refer to the same or like parts.

10 Refer to Fig. 3, which shows the heat sink made by the press. The air guide 41 deposes on the side or both side of the surface 42 of heat sink 4, and a fan 3 deposes up of the heat sink 4. The airflow 31 of fan 3 pass through the air guide 41 for leading orderly. In this embodiment, the length of the air guide 41 of an inlet 43 is short when the air guide closes the fan 3, and the length of the air guide 412 is long when the guide 412
15 closes an outlet 44. The design of this embodiment is for leading easily the airflow.

20 Refer to Fig. 4, which shows another embodiment of the heat sink of the present invention. The air guide 51 is made by the press to form the heat sink 5. The airflow passes through an inlet 54 of the fan 3 to an outlet 52 of the top of heat sink 5 and a side outlet 53 of the left of heat sink 5. The air guide 511 is short when the guide 511 closes the inlet 52 of the top, and the air guide 512 is long when the guide 512 closes the side outlet 53. Refer to Fig. 4, the width of heat sink 5 is small and could only use the left outlet 53 and could eliminate the outlet of top. The air guide of this
25 embodiment of the present invention could design one side or both side of the heat sink.

Refer to Figs. 5, 6 which show the heat sink apparatus of another embodiment. The air guides 6, 7 is a plurality of fins and comprises a comb means 61, 71 and bases 62, 72 wherein the comb means couples to the base. The comb means 61, 71 slope down from openings 611, 711 to form
5 a paraboloid, refer to Fig. 5, or an inclined plane, refer to Fig. 6, or any type-plane for leading easily. The widths of fins 612, 712 of comb means 61, 71 and the distances of 613, 713 design in accordance with the heat apparatus 8, refer to Fig. 8, and distance 82 of heat sink and the width 81 of heat sink. The comb means 61, 71 of air guides 6,7 can insert the side 83
10 or top 84 of the heat sink apparatus 8, and the side 83 of heat sink apparatus 8 is fastened by the bases 62, 72 or the top 84 deposits the width of the fins 612, 712 apart on each heat sink 81.

The air guides 6, 7 assembles to the heat sink apparatus 8 and the fin 612 deposited on the heat sink 81 apart, refer to Fig. 7, to form the surface
15 of heat sink 81 having a fin 612. The fin 612 can lead the airflow 31 of fan 3 to the central 21 of the CPU 2 for eliminating the heat when the heat does not lead at the top of heat sink 81 yet. Further, the air flow 111 passes from the top to the bottom for generating cooling performance to the heat sink 81, and the air guides 6, 7 lead the air flow to the central 21 for enhancing the
20 cooling performance. And, the guides 6, 7 insert into the heat sink apparatus 8, wherein each fin 612 and heat sink 82 have a break, and the end of fin 612 do not touch the bottom of heat sink 81, refer to Fig. 7, so that the air flow 31 can pass the fin 612 and heat sink 81 through to avoid the convolution to lower the cooling performance.

25 Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and

changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.